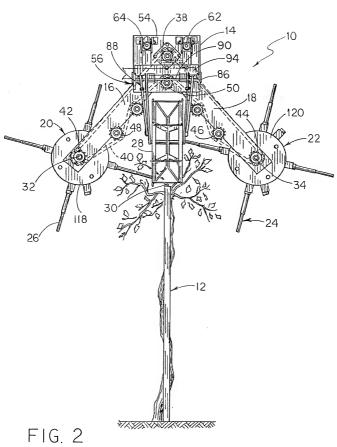
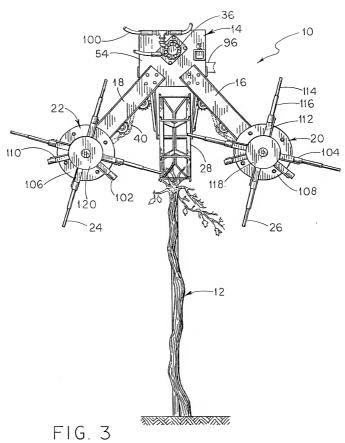


FIG. 1





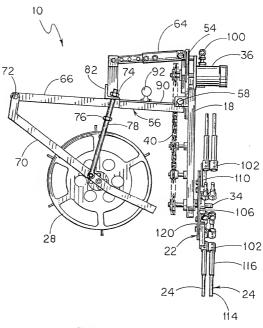


FIG. 4

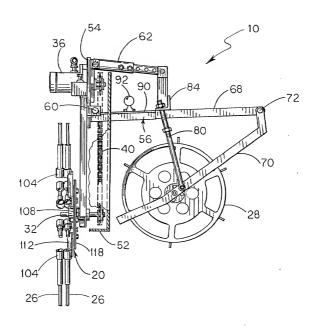
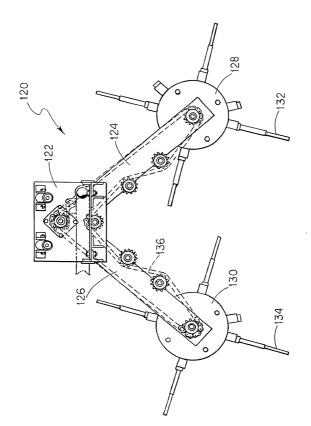
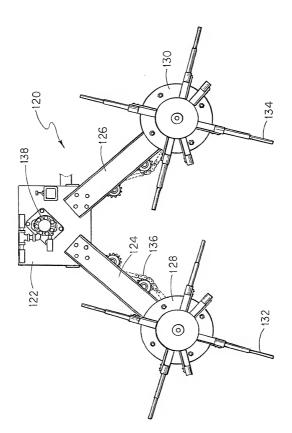


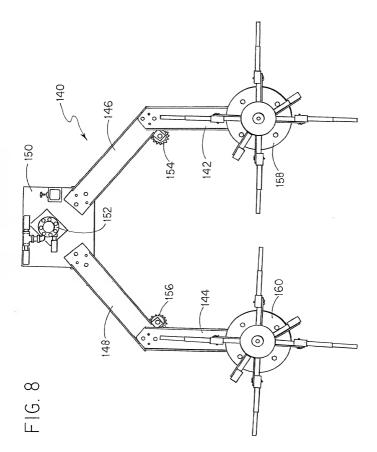
FIG. 5



F16. 6



F16.7



The second secon

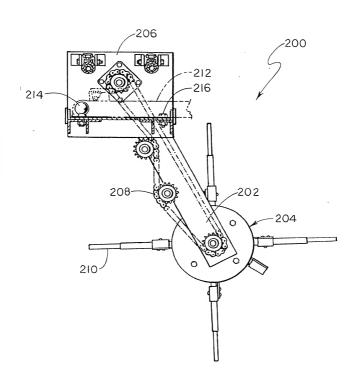


FIG. 10

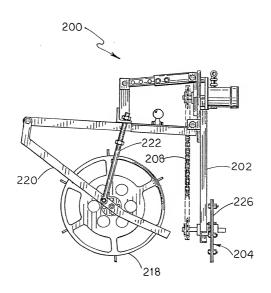


FIG. 11

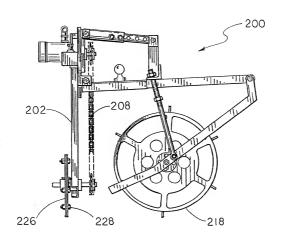
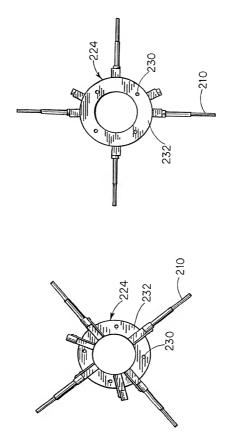
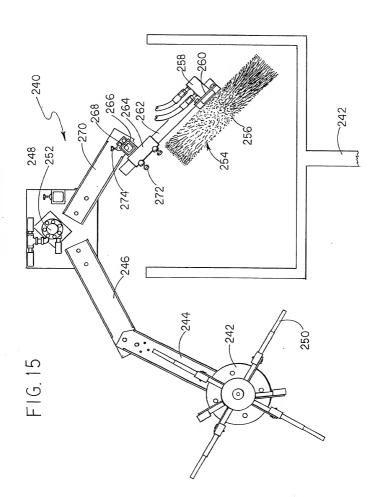


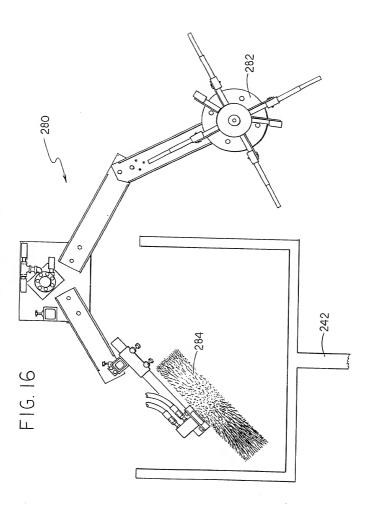
FIG. 12



F16.13

F1G. 14





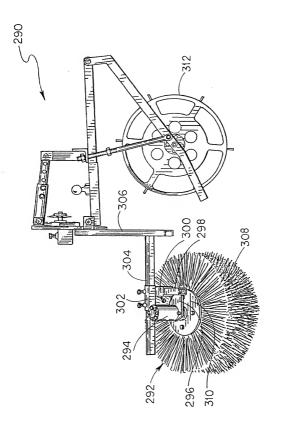


FIG. 17

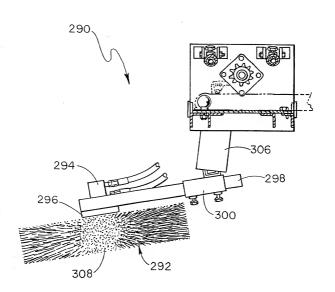
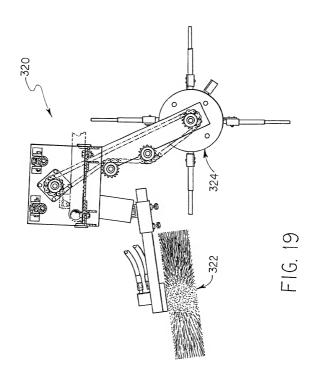


FIG. 18



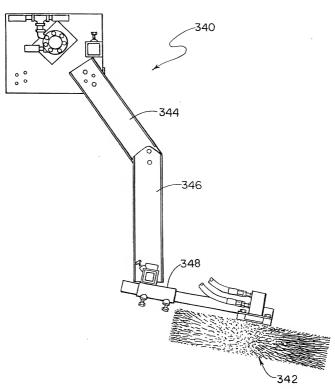


FIG. 20

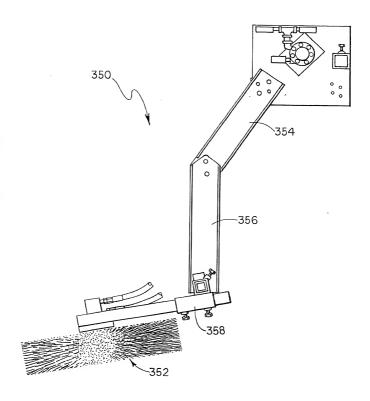


FIG. 21

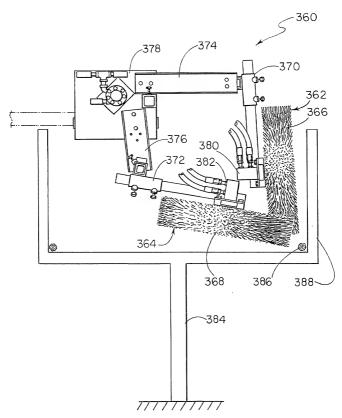


FIG. 22

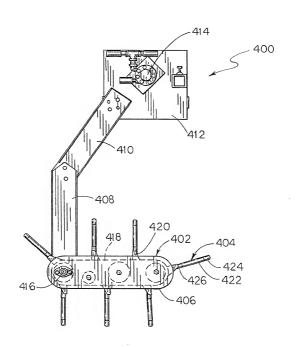
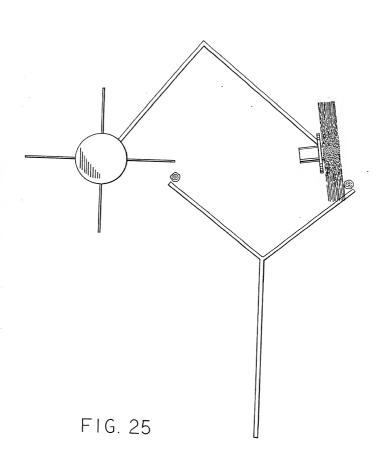
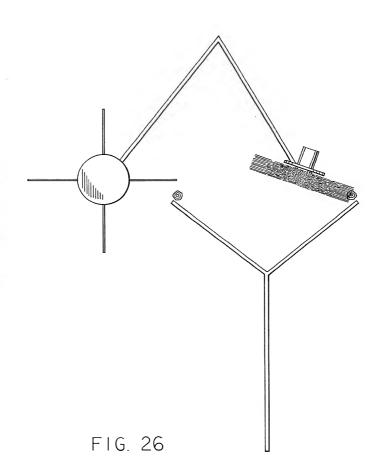
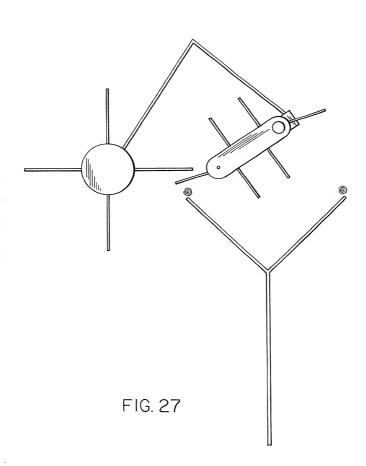


FIG. 23







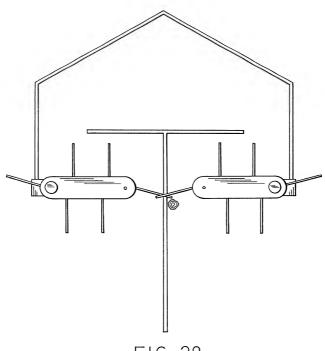
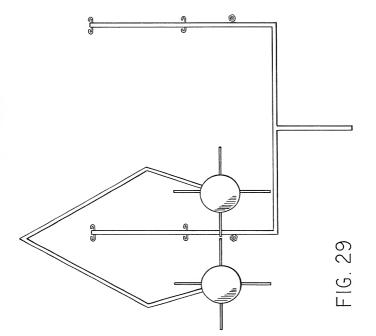


FIG. 28



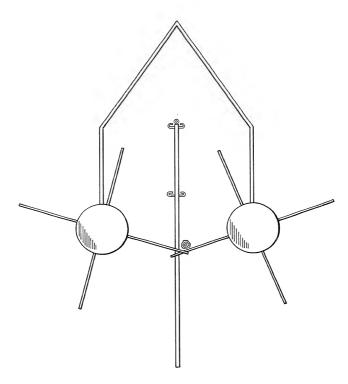


FIG. 30

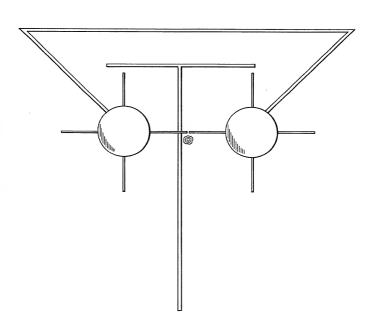
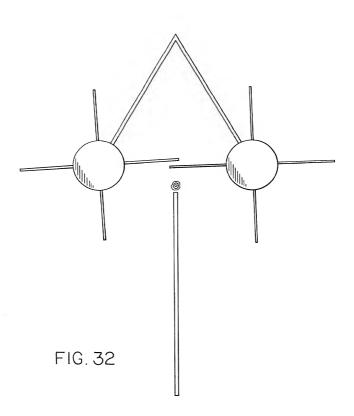
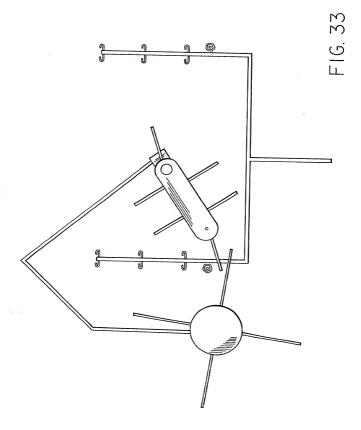


FIG. 31





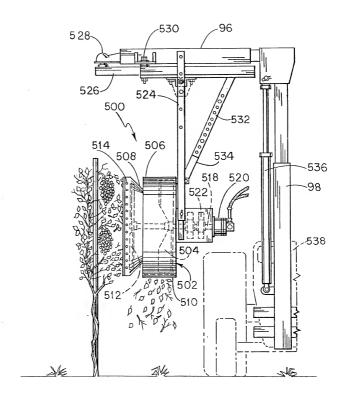


FIG. 34

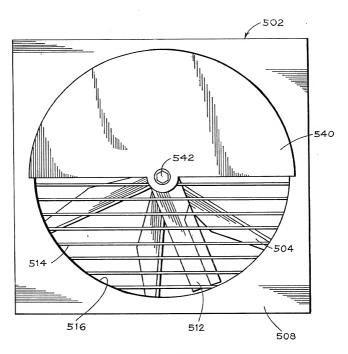


FIG. 35

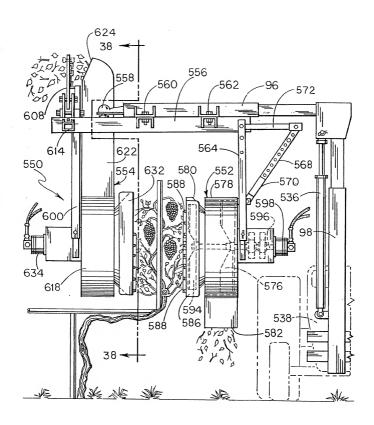
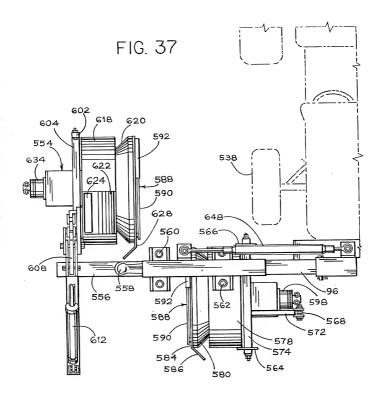
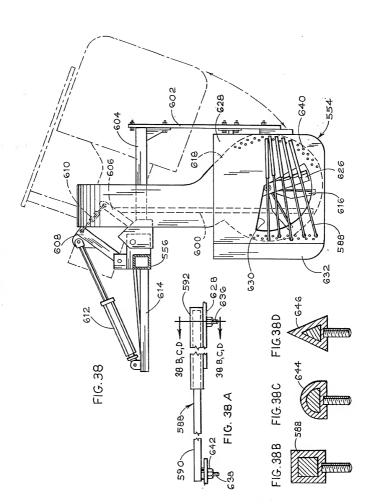
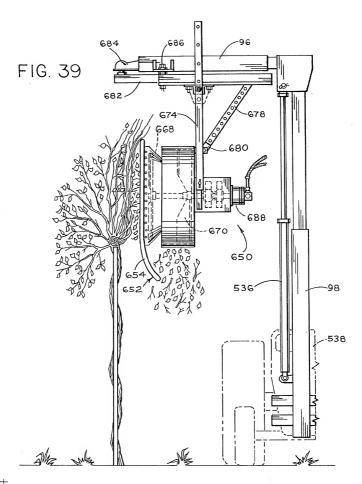
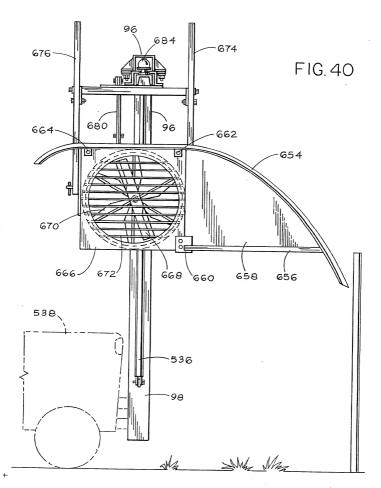


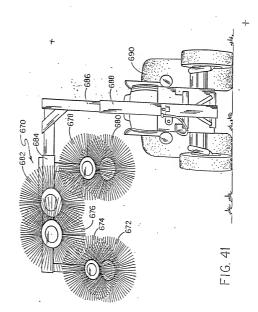
FIG. 36











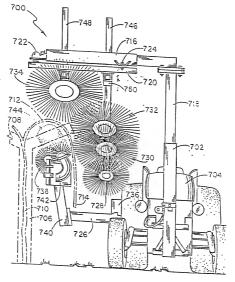


FIG. 42

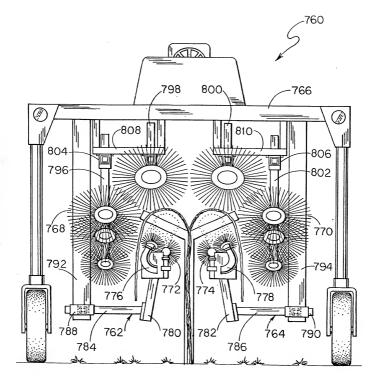


FIG. 42A

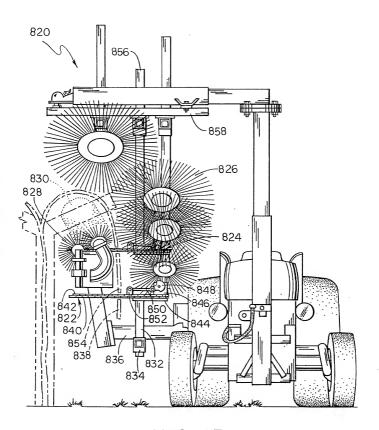


FIG. 43

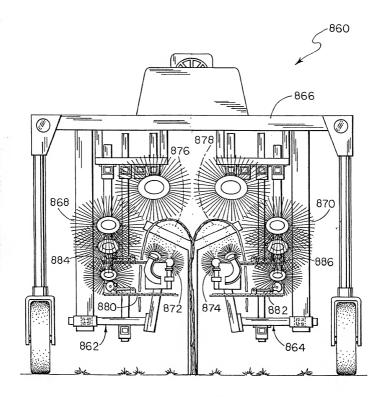
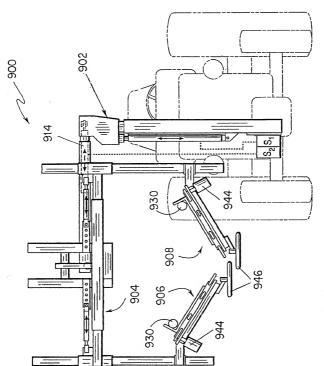
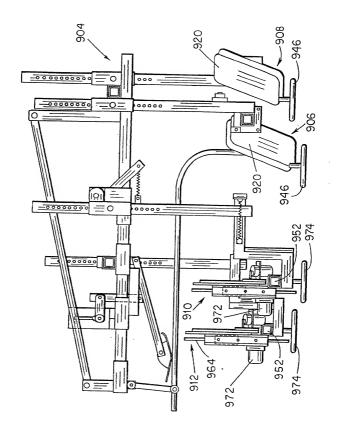


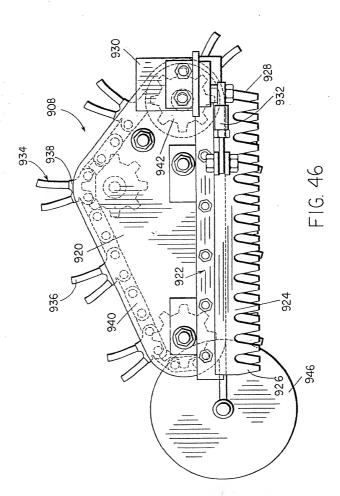
FIG. 43A

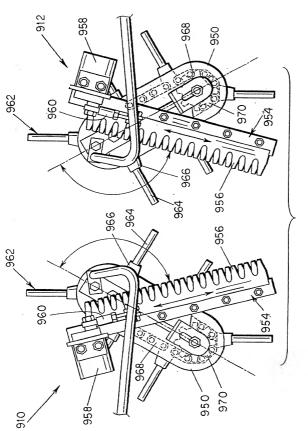


F16.44

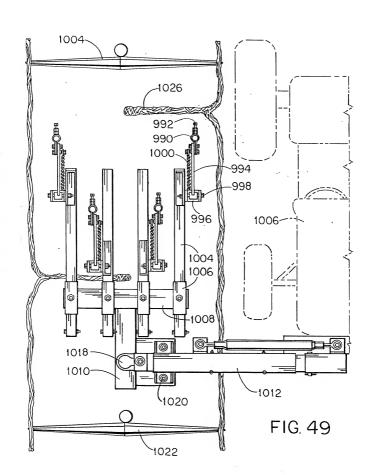
F16, 45

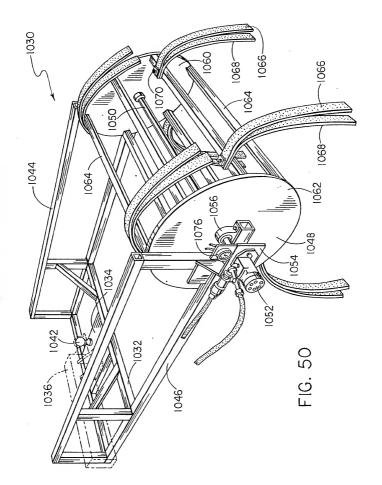


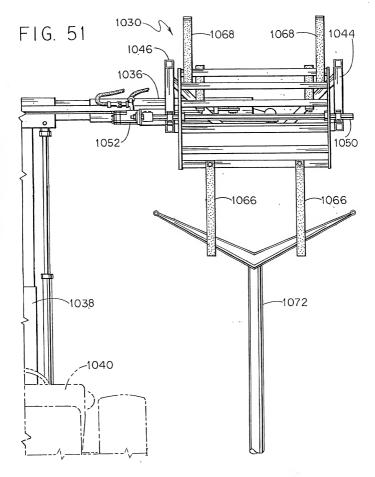


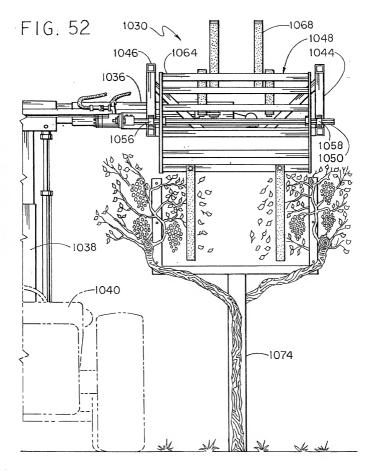


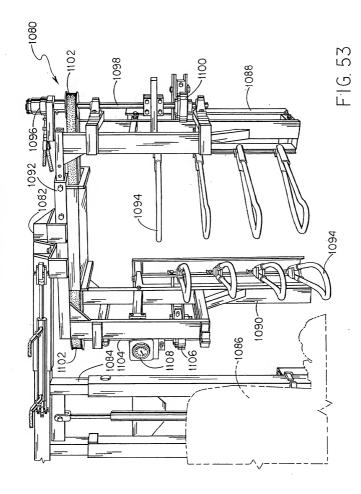
F16.47

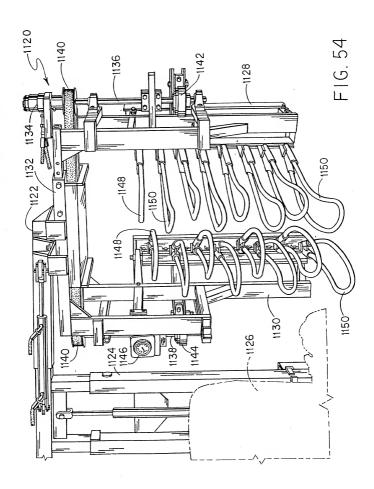












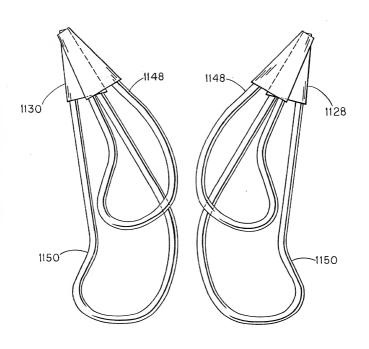
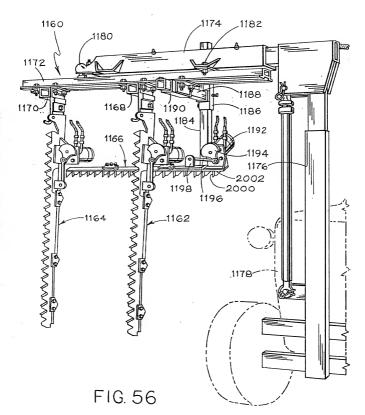
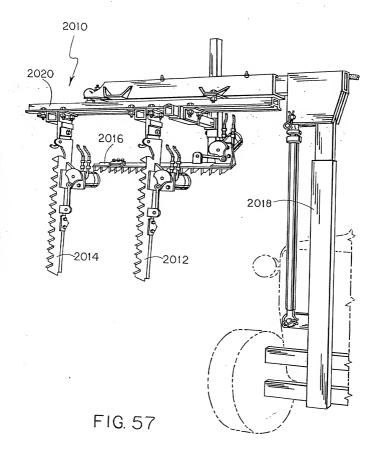
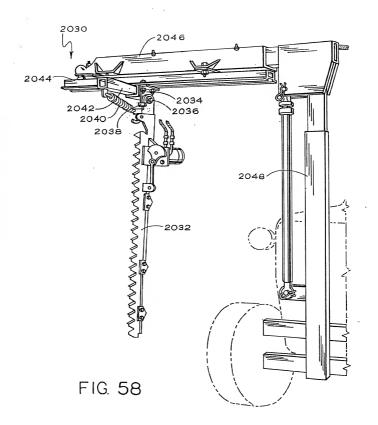
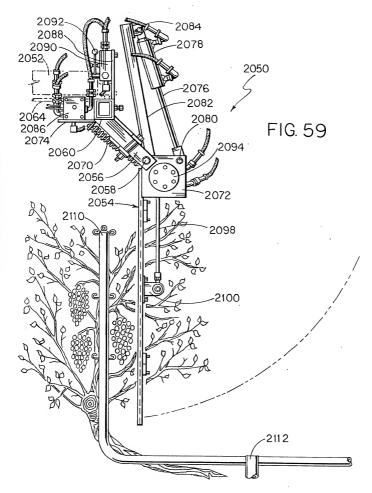


FIG. 55









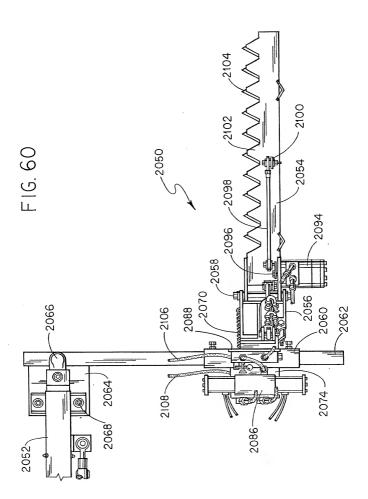


FIG. 61 2120 -2144 -2136 -2128 -2138 -2130 2146 2134 2132 2142 2140 2126-2166 2122 2124 2154 . 2150 2164 2156-2158-2160

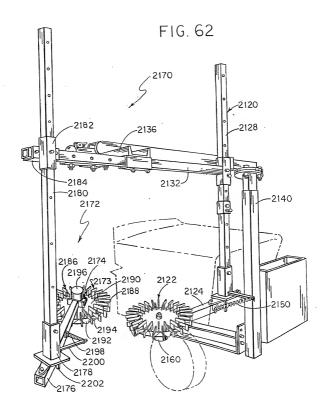
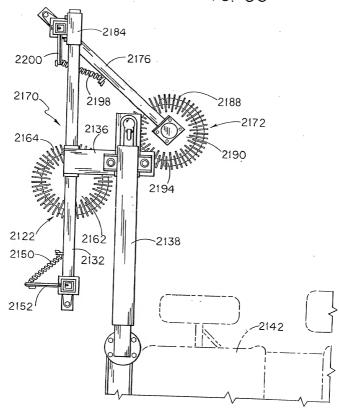
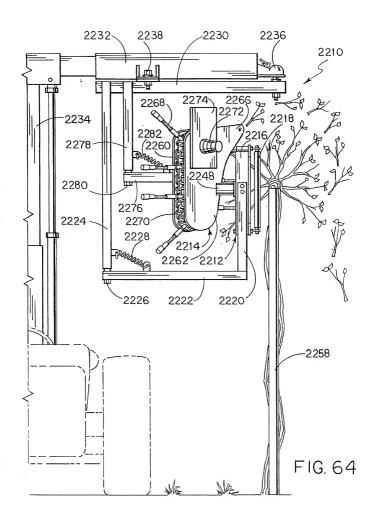
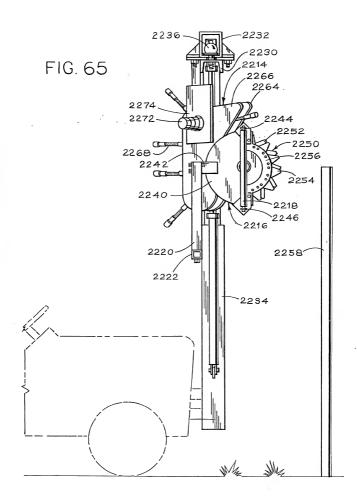
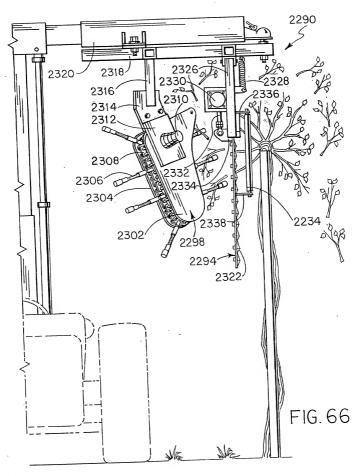


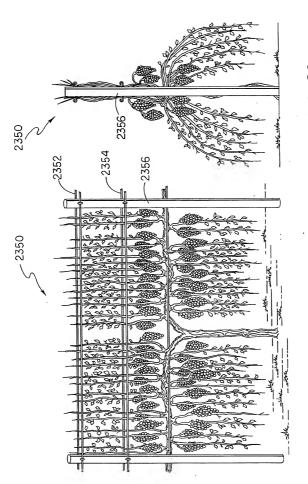
FIG. 63











F16. 67

F1G. 68

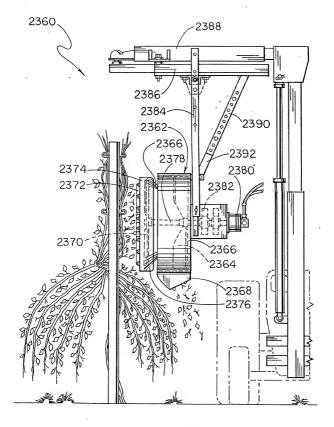


FIG. 69

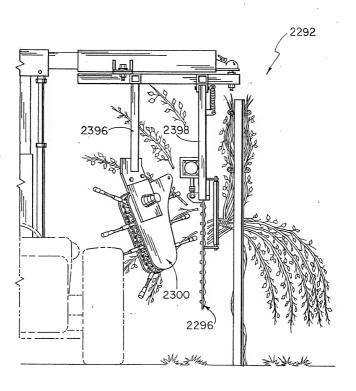
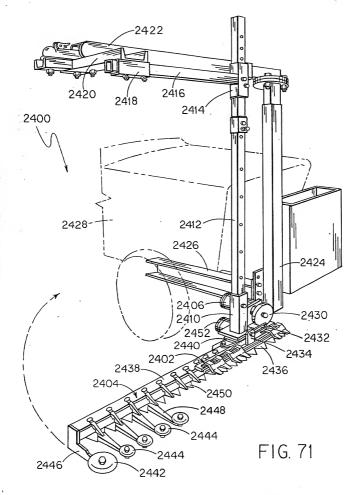
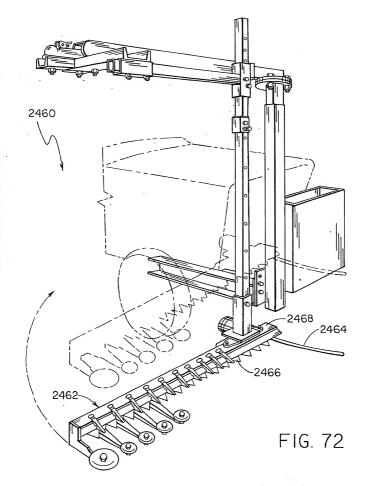
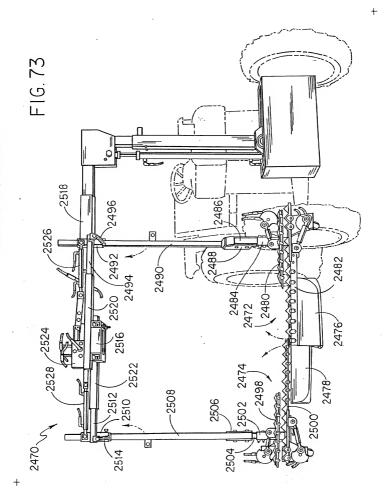
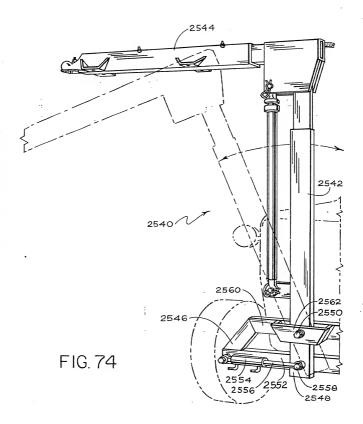


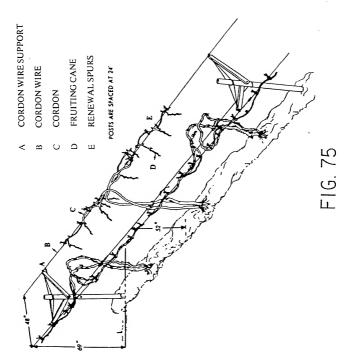
FIG. 70

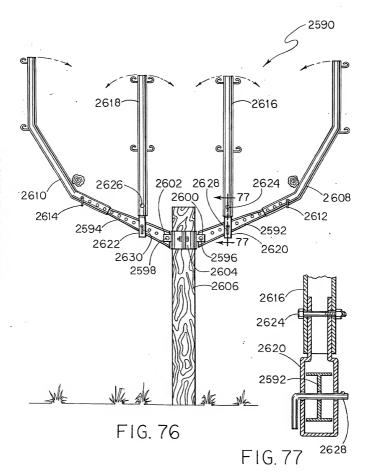


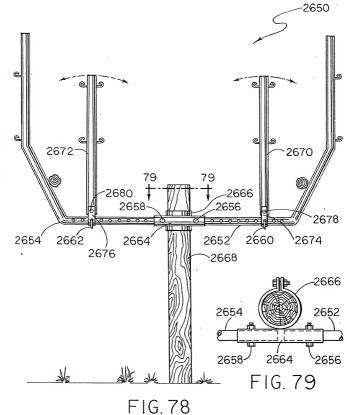












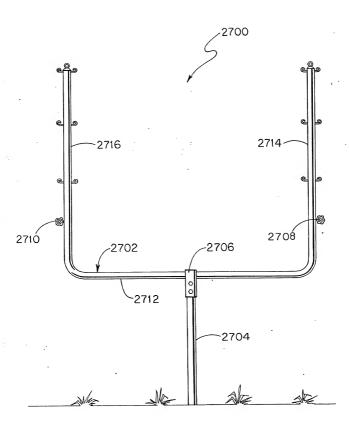
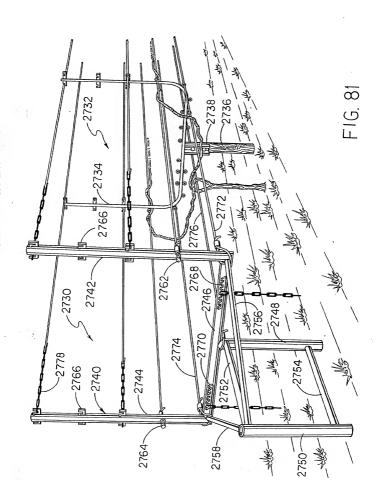
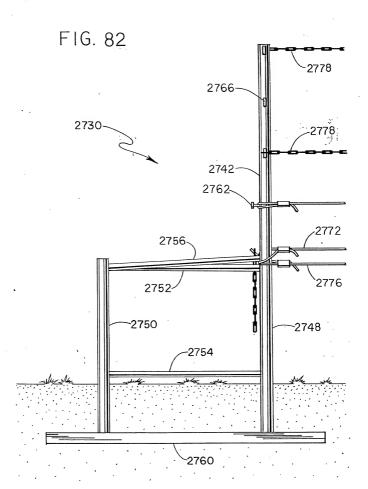


FIG. 80





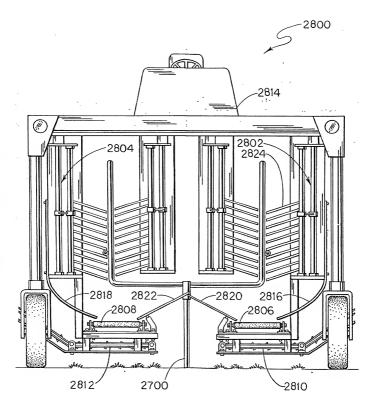
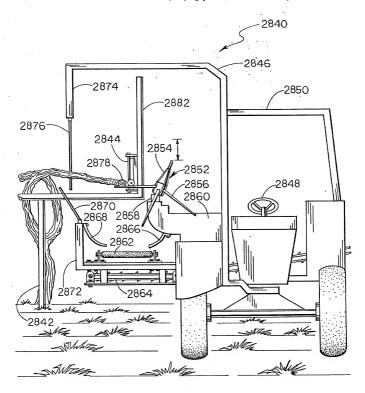
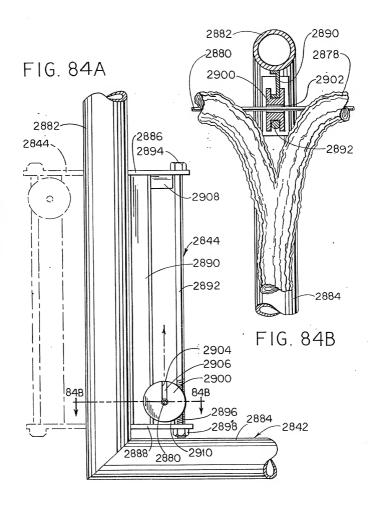
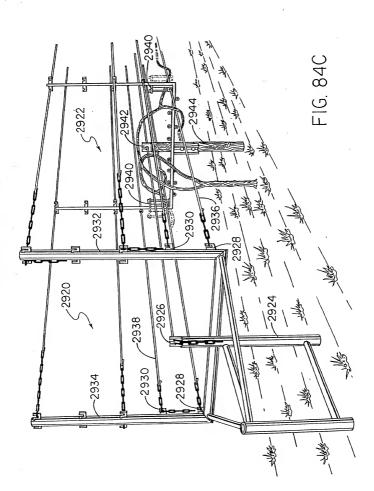


FIG. 83

FIG. 84







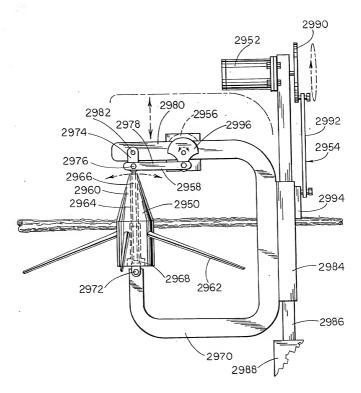


FIG. 84D

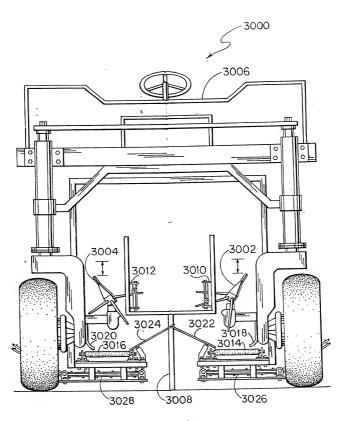
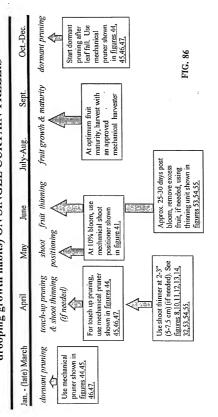
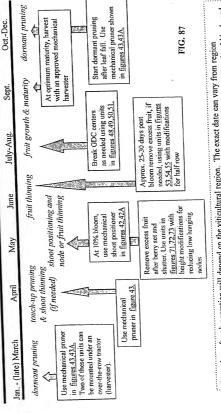


FIG. 85

ACTIVITIES OF VITIS LABRUSCANA (and other grapes with I, SEASONAL CHART FOR VINEYARD MECHANIZATION drooping growth habits) ON SINGLE CURTAIN TRELLIS



growth habits) ON GDC TRELLIS AND GDC-LIKE CANOPY SYSTEMS ACTIVITIES OF <u>VITIS LABRUSCANA</u> (and other grapes with drooping II. SEASONAL CHART FOR VINEYARD MECHANIZATION



III. SEASONAL CHART FOR VINEYARD MECHANIZATION ACTIVITIES ON MINIMAL PRUNED VITIS LABRUSCANA (and other grapes with drooping growth habits) ON SINGLE CURTAIN TRELLIS SYSTEMS

OctDec.	Α.		to 15" (38	vineyard 71,72.		it maturity,	vester.		of 30 FHG. 88	7	from region
July-Aug. Sept.	fruit growth & maturity		Trim all shoots to approximately 15" (38	cm) above the vineyard floor. Figures 71,72.	4	At optimum fruit maturity,	mechanical harvester.		the top center portion proximately 12 inches (exact date can vary
June July-1	fruit thinning frui		asy says	Approx. 25-30 days post bloom, remove excess	fruit, if needed, using	thinning unit shown in figures 53,54,55.			On vigorous vineyards, open the top center portion of the single curtain canopy approximately 12 inches (30	With a modified wife and	ultural region. The
May			03"	<u> </u>		thinning unit sho figures 53,54,55.) to	SI	(iiii)	denend on the vitic
March April		(=	Eliminate all new shoots, 2 to 3" (5-7.5 cm), for 4" (10 cm) on	canes and the cordons that are located on the top of the canopy. This can be accomplished with	modifications of the unit shown	in figure 50.	h	Use shoot thinner (if needed) to	eliminate some of the excessive buds when shoots are 2-3" (5-7.5cm) with unit shown in figures	53,54,55.	r
Jan (late) March											T. Care de

to region by as much as 3-4 weeks (depending on the cultivar). Therefore, mechanical operation should be based

on physiological growth of the vine. Of course, the seasons in the southern hemisphere are opposite.

IV. SEASONAL CHART FOR VINEYARD MECHANIZATION ACTIVITIES grapes with drooping growth habits) ON GDC TRELLIS SYSTEMS ON MINIMAL PRUNED VITIS LABRUSCANA (and other

١		١					
Jan (late) March April	April	May	June	July	Aug.	Sept.	OctDec.
	shoot thinning		fruit thinning		fruit growth & maturity	maturity	
			4		≪	At optimum fruit maturity,	it maturity,
	J	A g	Approx. 25-30 days post bloom, remove	w eo		harvest with an approved mechanical harvester	n approved vester
Choot t	Shoot thin (if needed) to	- 6	cess fruit, if need	ded,			
elimina	eliminate some of the	===	using thinning unit	(Clean GDC	popo	
excessi	excessive buds when shoots	20.	shown in tigures 23,	าใ	using unit shown	UMU	
are 2-3	are 2-3" (5-7.5cm) with	<u>بر</u>	54,55 with	910	in figures 48.49.	8.49.	
unit in	unit in figure 18 and with	=1	modifications for Itali		50 51		
modifie	modifications for half rows	21	rows.		17.7	Ĭ	FIG. 89
to units	to units shown in figures		<		100	j.	
53,54,55.	55		,		Trim all chaote to	ot oto	
				Γ	I TITLI ALL SILO	I fill all silotts to	
			At shatter, open	<u> </u>	approximate	approximately 12 (50000)	
			centers with units	£ _	Figures 71,72.	72	
			III IIBUINS SON				

ACTIVITIES OF <u>VITIS VINIFERA</u> AND FRENCH AMERICAN HYBRIDS PRODUCED ON HIGH WIRE SINGLE CURTAIN TRELLISES V. SEASONAL CHART FOR VINEYARD MECHANIZATION

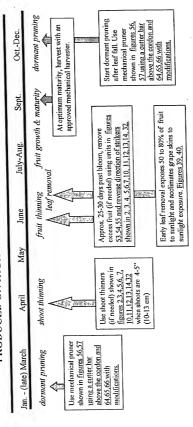
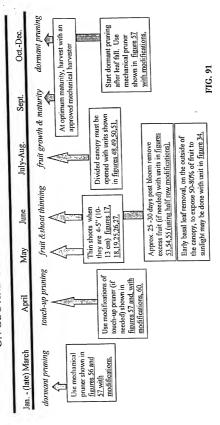


FIG. 90

VI. SEASONAL CHART FOR VINEYARD MECHANIZATION ACTIVITIES OF VITIS VINIFERA AND FRENCH AMERICAN HYBRIDS PRODUCED ON GDC AND OTHER DIVIDED CANOPY TRELLISES



VII. SEASONAL CHART FOR VINEYARD MECHANIZATION ACTIVITIES IN MINIMAL PRUNED VITIS VINIFERA AND FRENCH AMERICAN HYBRIDS TRAINED TO A HIGH WIRE SINGLE CURTAIN TRELLISING SYSTEM.

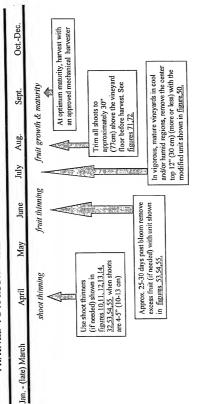
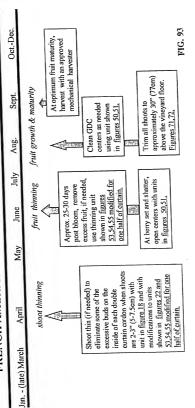
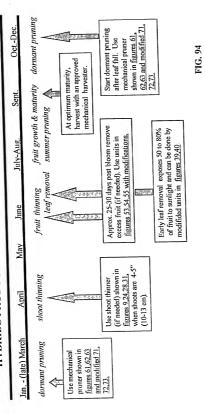


FIG. 92

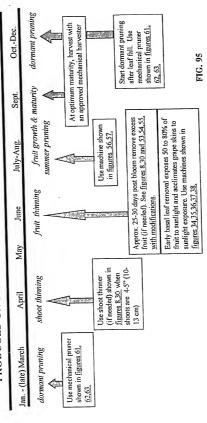
FRENCH AMERICAN HYBRIDS ON GDC TRELLIS SYSTEMS VIII, SEASONAL CHART FOR VINEYARD MECHANIZATION ACTIVITIES ON MINIMAL PRUNED <u>VITIS VINIFERA</u> AND



HYBRIDS PRODUCED ON STANDARD CALIFORNIA T-TRELLIS ACTIVITIES OF <u>VITIS VINIFERA AND FRENCH AMERICAN</u> IX, SEASONAL CHART FOR VINEYARD MECHANIZATION



X. SEASONAL CHART FOR VINEYARD MECHANIZATION ACTIVITIES PRODUCED ON STANDARD VERTICAL MOVEABLE CATCH WIRES OF VITIS VINIFERA AND FRENCH AMERICAN HYBRIDS

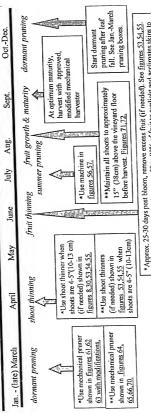


XI. SEASONAL CHART FOR VINEYARD MECHANIZATION ACTIVITIES OF VITIS YINIFERA AND FRENCH AMERICAN HYBRIDS PRODUCED ON LYRE OR "U" AND OTHER DIVIDED CANOPY TRELLISES

Sept. OctDec.	turity dormant pruning	At optimum maturity, harvest with the	Lyre or "U" mechanical naivesica will a twin picking head and a single	under each picking head as shown in	figure 83, or use narvesting system shown in figures 84,84A, 84B,84D,85 on the standard Lyre or "U".		Start dormant pruning	after leaf fall. Use	shown in figures 56,57.	58,59,60,61,62,63.	70 030	FIG. 90
July-Aug.	fruit growth & maturity	Summer pruming At optimu	Lyre or "	conecung under each	shown in on the sta		332	Vines are summer	shown in figures 52	with modifications, and 56,57,58,59,60,		
Ime	fruit thinni	mmns A			::::::::::::::::::::::::::::::::::::::	st bloom, remove	. Use machines in	3,54,55 With	ral to expose 50 to	t can be done with 3,36,37,38. Early leaf	the skins to sunlight	
Next.	April Man		Shoot removal	when shoots are	figures 15, 16, 20, 21, 22, 23, 29, 33.	Approx. 25-30 days post bloom, remove	excess fruit (if needed). Use machines in	figures 29,30,33, and 53,54,55 with modifications.	Farly basal leaf removal to expose 50 to	80% of fruit to sunlight can be done with machines in figures 35,36,37,38. Early leaf	removal acclimates grape skins to sunlight	exposure.
	Jan (late) March		Use modifications of	shown in <u>figures 56,57</u> ,	36,25,00,01,05,05							



XII. SEASONAL CHART FOR VINEYARD MECHANIZATION ACTIVITIES SMART-DYSON BALLERINA (and similar) TRELLISING SYSTEMS. OF VITIS VINIFERA AND FRENCH AMERICAN HYBRIDS ON



*Approx. 25-30 days post bloom, remove excess fruit (if needed). See figures 53.54.55.
*Farly basal leaf removal exposes 50 of 80% of fruit os unlight and acclimates skirs to sunlight exposure. Le endifications of the units in figures 34.52.66.37.38.
sunlight exposure. Le endifications of the units in figures 34.52.66.37.38.

**Approx. 25-30 days post bloom remove excess fruit exfected) with unit shown in figures. 53.54.55. sunlight. Use units in figures. 39.40 with modifications.

*Use on the upper part of Smart-Dyson Ballerina.